

# Solar Advisor Model Release Notes

## ***Version 2.0 June 2008***

### ***PV***

- Implement new inverter performance model: Sandia Performance Model for Grid-connected PV Inverters
- Removed previous curve-fit inverter model
- Implement new photovoltaic module performance model: California Energy Commission Performance Model.
- Update Sandia PV Array Performance Model with additional modules. (Was King Model in previous versions.)

### ***CSP***

- Implement dry cooling capability for CSP systems.
- Add new Solel UVAC3 HCE to CSP model library.

### ***General***

- Add generic technology option: The simple heat-rate model allows comparisons between solar technologies and conventional fuel-based technologies in all markets.
- Add Third Party Ownership option to commercial projects.
- Allow operation and maintenance costs and annual degradation rates to be entered on a year-by-year basis.
- Add new results workbook that stores complete set of calculated metrics, hourly data, monthly averages, and annual averages to facilitate reviewing results in Excel.
- Improve display of results page: Move results button to bottom of navigation menu; replace single button with three, Results Summary, Spreadsheet, and Time Series Graph; implement new Run Analysis button to replace "results pending" status. Also add new Results menu.
- Replace LCOE stacked bar graph with stacked cost graph to correct error in LCOE cost breakdown under certain conditions.
- Add several new standard graphs, including monthly output, monthly inverter efficiency (PV only), and energy flow (CSP only).
- Add new graphs that are available when one or more Independent parametric groups are defined.
- Create new compressed file format (SCIF) that stores only inputs in small files for easier file sharing. Cases can be imported and exported from SAM files in the SCIF format.

### ***Minor changes***

- Minor bug fixes
- Reduce required disk storage space by deleting workbooks and other files from temporary folder when closing SAM.
- Add transformer derate category to Array page for PV systems.
- Display weighted average cost of capital (WACC) on Financials page.

- Improve internal rate of return (IRR) calculation for utility and third party ownership projects.
- New Fixed (per year) operation and maintenance category.
- New folder (Samples\Financial\_Spreadsheets) contains sample workbooks illustrating Solar Advisor financial calculations. Workbooks are also posted on the Solar Advisor website.
- Solar Advisor opens with an empty window instead of automatically opening previous file.
- Add close file button to menu bar.

### ***Version 1.3 October 16, 2007***

- Add capability to use EnergyPlus Weather file format (EPW) files for weather data.
- Add capability to add weather files to the collection of built-in files.
- Add weather data viewing tools, links to weather data web sites, and Help button to the Climate page.
- Add ground reflectance with snow input variable to Array page for PV systems. SAM Applies the snow ground reflectance value during hours that the weather data indicates there is snow on the ground.
- Fix a bug in the inverter model for low part-load operation.
- Add waterfall graph capability in DView on Results page for CSP systems.
- Update user guide.
- Improve overall performance of model.

#### **Other changes**

- Add start up mode settings (File, Settings) and change tab names in Settings window.
- Add help button to Climate page that opens a help page describing weather file options.
- Improve search algorithm that finds a solution for systems using utility financing.
- Improve calculation of number of TRNSYS runs displayed in information message.
- Change hourly output buttons on Results page for CSP systems.
- Improve handling of files created by different versions of SAM.
- Improve automatic graph scaling.
- Improve message for users attempting to run SAM when the Windows language setting is not English.
- Improve automatic scale on sliders.
- Improve file navigation for File, Open and File, Save As commands.

### ***Version 1.2***

Version 1.2 was an internal release. The Version 1.3 description above includes all changes since Version 1.1.

### ***Version 1.1 August 10, 2007***

- *Photovoltaics Array*: Add detailed derate factors.
- *Results*: Add Slider column to results summary table that displays output measures based on the position of visible sliders.

**Other Changes:****Results**

- Change the units of ITC and IBI incentives that appear with sliders and in graphs from % Max to %.
- Improve the functioning of the Notes box.
- For utility systems with IOU financing, remove first year PPA from the results summary table.
- For utility IPP financing, improve the LCOE calculation algorithm.

**Incentives**

- Cursor changes to an hourglass while resetting default market values.
- Correct default settings for tax details to show that for residential systems, all utility incentives are taxable, and that utility incentives do not reduce the ITC basis.

**Photovoltaics Array**

- Changed default total derate factor in sample files to 84% to match PVWATTS.

**Costs**

- Correct the way the sales tax rate and module cost per unit values are displayed.

**Parametrics**

- Fixed a bug related to incentives.
- Fixed a bug related user-defined variables.

**External Spreadsheets**

- Improved handling of missing workbooks.
- Fixed a bug related to working with external spreadsheets.

**Menus**

- Add the Release notes command to Help menu to display a list of version numbers and the new features and fixes associated with each version number.
- Reorganize the list of commands on the Case menu.